

The Allegheny Portage Railroad

THE Allegheny Portage Railroad, which began its steep climb of Allegheny Mountain a little westwards of Hollidaysburg, an old town four miles south of modern Altoona, and then descended on the western slope to Johnstown, was a great technological feat. It capped the joint endeavors of a number of versatile engineers serving under the Pennsylvania Board of Canal Commissioners. Both in conception and execution it was a triumph of engineering. In operation, it was for nearly two full decades the most efficient method of transporting the manufactures of western Pennsylvania eastwards across the mountain barrier, and in the opposite direction, the imports and products of Philadelphia to the warehouses and market places of Pittsburgh.

This railroad was not a link in the great rail network that now binds all parts of our land together, but rather a link in Pennsylvania's waterways. Like the Columbia and Philadelphia Railroad it was a division on the Pennsylvania Canal's Main Line, which ran from the great city on the Delaware to the great city at the Forks of the Ohio. It connected the Juniata Division at Hollidaysburg with the Western Division of the Canal at Johnstown. (See *Historic Pennsylvania Leaflet No. 1, "The Pennsylvania Canals."*)

It was operated at the expense of the people of Pennsylvania, and notably to their advantage. Every mile of its length between Hollidaysburg and Johnstown was as busy as a beehive. On its levels moved heavy-laden boxcars, diminutive passenger coaches, entire smaller canalboats, and sectionalized longer canalboats. On its planes, ropes drew up or let down coaches and boats, all gliding on rollers set halfway between the tracks. Hitchers busily hitched their burdens

to ropes, or unhitched them to be drawn once more on a level by horses or steam locomotives. Every one of the ten planes of the Portage hummed with activity. There were wood or coal stations near at hand, with firemen to stoke engines, stationary or locomotive, and engineers to man either type. Water carriers were in constant service. Car agents, often called State Agents, directed passengers and freight and collected tolls. Their Superintendent, in his office at the Summit, bore responsibility for the whole railroad. Supervisors, with foremen and laborers, saw to the problems of maintenance. In the two State shops at Hollidaysburg and Johnstown, blacksmiths, blowers and strikers, machinists, and finishers industriously forged or repaired, made or finished engine and track parts.

Early thought of a railroad across the mountain to connect canals built to its east and west foothills had occurred to Postmaster John Blair of Blair's Gap in the spring of 1824. That summer and autumn three Canal Commissioners, two years before the Commonwealth decided to build the great canal, explored a route for it across the southeastern counties of the State, up the Susquehanna River to the Juniata, along the Juniata to Allegheny Mountain, across that barrier and onwards from it by way of the Conemaugh, Kiskiminetas, and Allegheny rivers towards Pittsburgh. In 1826 the General Assembly voted to have the Pennsylvania Canal constructed, and during the next few years many surveys were made of possible routes by which the mountain barrier might be surmounted.

In December, 1828, when the building of the Eastern, the Juniata, and the Western divisions was already in progress under the supervision of the Canal Board, Moncure Robinson was engaged to make a new survey of Allegheny

Mountain and to plan a railroad over the divide. But the Board, willing though they were to accept Robinson's proposal of five planes on the east and five on the west slopes of the mountain, did not approve his idea of a mile-long tunnel; and in 1830 they engaged the famous Stephen Harriman Long to make further explorations.

The Robinson plan was adopted in 1831, with modifications by Colonel Long and Major John Wilson, the South Carolina engineer who surveyed and began the Columbia and Philadelphia Railroad. The first contracts were made in May. The Allegheny Portage was now to have a thirty-six-mile route, ten planes with ten stationary engines at their crests, a stone viaduct across the Little Conemaugh, a 900-foot tunnel, a skew-arch bridge of two spans, other minor bridges, and eleven levels. It would ascend 1,398 feet above the eastern basin of the canal at Hollidaysburg, or 1,171 feet above the western basin at Johnstown.

The railroad took three years to build under the general direction of President James Clarke of the Canal Board and the immediate superintendence of Samuel Jones. The engineer in charge was Sylvester Welch, an expert who had done his early surveying along the Erie Canal in New York and had had further experience on the Union and Lehigh canals in Pennsylvania.

Forests of spruce and hemlock, oak, and white pine were cut through. Two oblique arches of cut stone rose into a stout and beautiful bridge crossing the Beaver Dam Branch of the Juniata at Hollidaysburg. The lofty single span of stone over the Little Conemaugh rose to its full height of eighty feet in 1833, eight miles east of Johnstown. West of it and four miles nearer to that town, Staple Bend Tunnel was finished the same year with a sixteen-foot bore through solid rock, facings of cut stone at its ends, and most of its 900-foot length naturally arched. Like the viaduct, it challenged the admiration of the public "for boldness of design and strength and beauty of execution."

Tracks were laid on the ten planes and eleven levels. Iron rails imported from England or made by Pennsylvania forges were superimposed on wooden sills laid on stone sleepers, early predecessors of our modern embedded crossties. Sheds were built with foundations of masonry

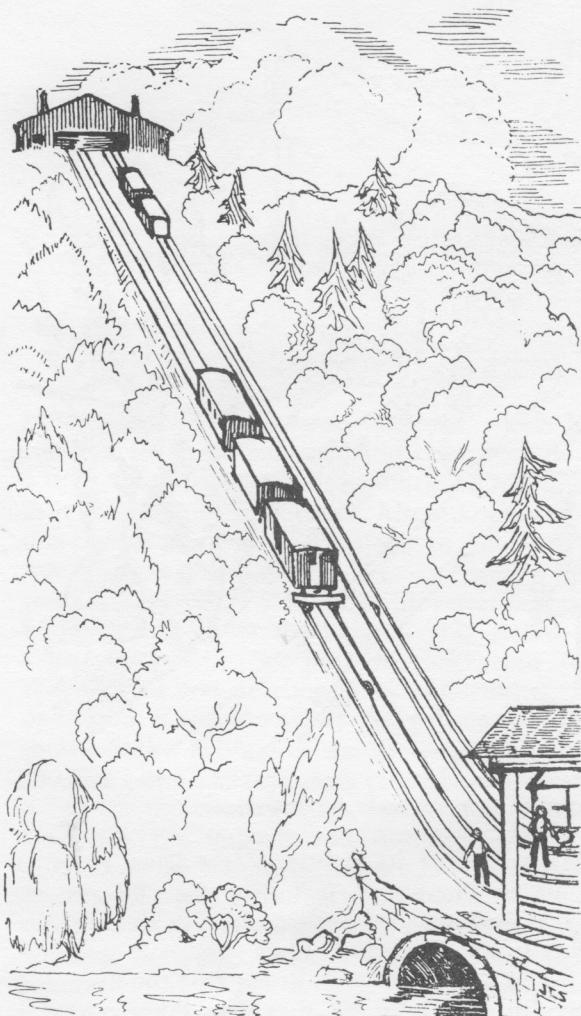
to shelter and support stationary engines and cable sheaves.

Locomotive engines were ordered, but the first one did not arrive until 1834 at the close of the first season of operations. This was the "Boston," from the Mill Dam Foundry in Massachusetts, which was brought by sea to Philadelphia and then from that city by the Columbia and Philadelphia Railroad and the new Pennsylvania Canal to Johnstown. The second and third locomotives, the "Delaware" and the "Allegheny," came the next year from New Castle, Delaware, only to find themselves quite outclassed by the "Boston," which was making four trips a day back and forth on the thirteen-mile level between Planes 1 and 2, east of Johnstown, a total distance of fifty-two miles at the rate of ten miles an hour. The fourth, the "Pittsburgh," built by McClurg, Wade and Company of Pittsburgh on the model of the "Boston," came at the close of the 1835 season.

Hemp ropes three-and-a-half inches in diameter and 2,960 to 6,234 feet long were put into use on the planes, drawing up or lowering burdens at angles of inclination from 3 degrees, 60 minutes on Plane No. 9 to 5 degrees, 40 minutes on Plane No. 8. The aggregate length of the great cables was 11 miles and 778 yards, and they weighed 118,649 pounds, some fifty-nine tons.

The Allegheny Portage went into full-length service—but without locomotive engines—in the early spring of 1834. As the ice and snow, which blocked much of the mountain in February, melted into the thaws of March, craft began appearing on the Western Division canal basin in Johnstown—on the 14th, the line boat "Dewitt Clinton" laden with bacon, on the 15th, a second boat, and on the next two days a number of scows bearing on their decks some thirty railroad cars. The official opening was on March 18; and traffic set in for a season which lasted until winter forced the annual closing of the Pennsylvania Canal from December to March. For twenty years after that, the railroad and its planes continued in service.

But every year was a year of change: in one year, more stationary engines came from Pennsylvania foundries like Smith and Minis, Sinton Rogers, Warden and Benney, or McClurg, Wade and Company; in another year more locomotives, like the "Bush Hill" and "George Washington" built by William Norris of Phila-



Plane No. 8.

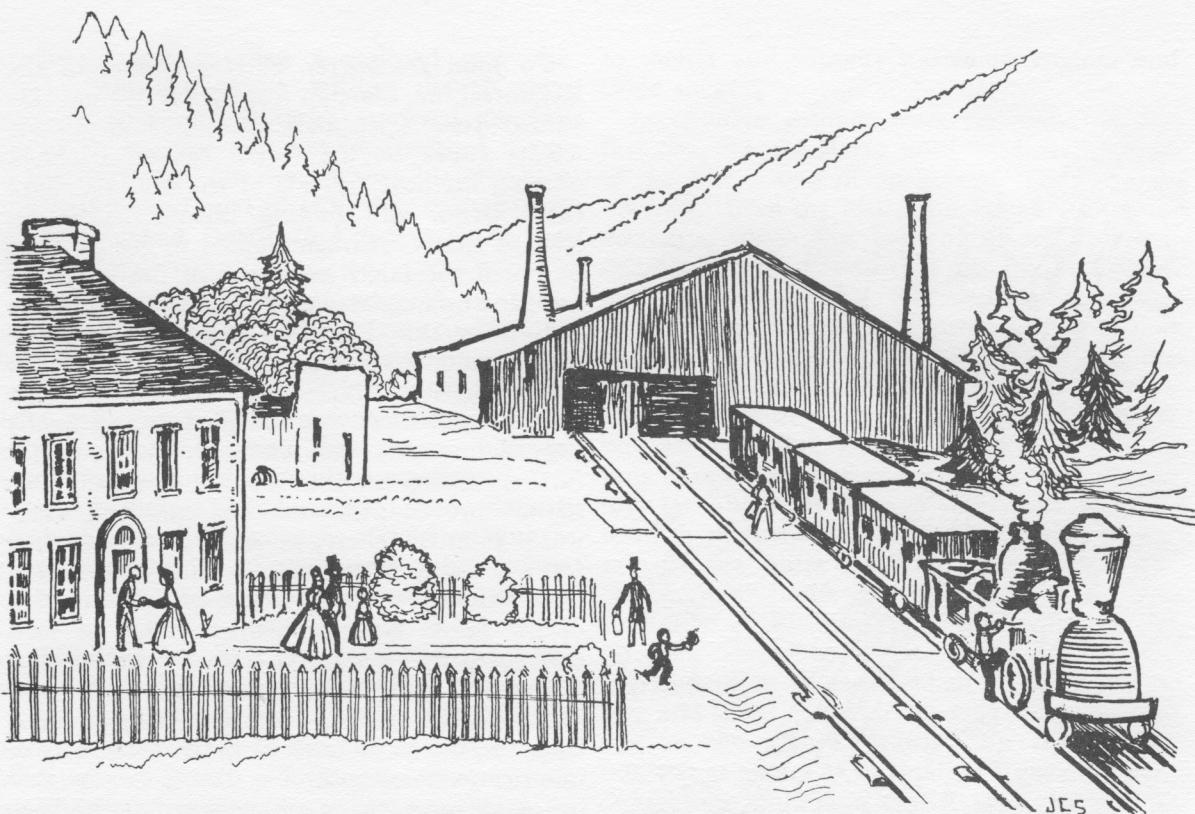
delphia or the "Backwoodsman" and "Mountaineer" manufactured by McClurg, Wade and Company. New tracks were laid until every level had a second track. New types of rail, edge-rail succeeding bar-rail, came into use, fastened now by "chairs" to new types of sleepers. New dimensions in cars came, new models in boats and coaches, as forwarding companies who owned most of them tried to adapt their modes of shipment to the facilities of the Portage and provide for greater comfort of passengers. As traffic thrrove, firms of forwarders became numerous: the Baltimore Line, the Pennsylvania Packet Boat Company, the United States Portable Boat Line, the Reliance Portable Boat Line.

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To John Dougherty, chief promoter of the Reliance Line, came an inspiration one day. He beheld Jesse Christman arriving from Lackawanna Creek on the North Branch Division, offering his boat for sale at the Hollidaysburg canal basin, and finding no purchaser. He learned that Christman wanted to get on west, he noted the fairly small size of the unsalable boat, and he suggested that the boat be hauled by rail over the Portage. Captain Christman agreed, and boat, family, and all were drawn out of the basin, loaded on a truck, hauled up and lowered down on the planes, and finally slipped into the canal basin at Johnstown for further towing on the Western Division. The scheme proved successful, and not long afterwards John Dougherty invented a portable boat for similar handling. He created the section boat, patented it, and by 1842 had the sanction of the Canal Board for the carriage of such craft, or paired parts of a craft, on the Portage.

Scenes at both Hollidaysburg and Johnstown changed. The spectacle of boats being dragged from the basins or lowered back into them became common. Ropes of a new size came into use as old ones rotted and snapped at the boat inclines. Captain Thomas Young, owner of the most used boat incline at Johnstown, needed a stouter rope; John A. Roebling, German emigrant, naturalized American, had been wanting to try out a scheme for making and using wire rope, and this was his chance to do it. Roebling set up a ropewalk on his Saxonburg, Butler County, farm. He bought wire from Pittsburgh, produced a 600-foot wire rope of an approximately one-inch diameter, and installed it at the Captain Young's Johnstown boat slip.

That was a beginning, and out of it grew a greater change. In the next eight years Roebling's wire ropes of diameters from $1\frac{1}{4}$ to $1\frac{5}{8}$ inches and gigantic lengths up to 6,400 feet went into use on all the planes of the Portage. Most of the time they went into entirely successful use, supplanting hemp that decayed all too early and broke all too often. But they were costly. Their weight often made it necessary to rebuild foundations at stationary engine sheds. Nor did they produce immediate acclaim for the engineer who later would command world-wide admiration for the use of wire rope in building and designing suspension bridges at Pittsburgh, Cincinnati, and Brooklyn. Roebling exemplified his unique genius first on the Allegheny Portage



The stationary engine house at the summit level, and the Lemon Inn, built by Samuel Lemon before 1830. Passengers are coming out of this wayside tavern to take the train for Johnstown.

in solving the difficult problems of its ropes.

But those were problems on planes, and planes were but a passing device in railway history. In 1839-1840 the State of Pennsylvania had engineers study new routes for getting a great railroad over Allegheny Mountain without the use of planes, and in the early 1850's the State spent vast sums on the erection of a New Portage which would eliminate them. But the New Portage was not finished before the incorporated Pennsylvania Railroad Company completed its route across the mountain in 1854. The era of modern railroad building had come everywhere in the United States, and new facilities were superseding earlier ones. The Commonwealth found itself unable to compete successfully with these chartered companies. In 1857 it sold to the Pennsylvania Railroad the

Main Line of its Public Works from Philadelphia to Pittsburgh, including the Old and the New Portage; and service on both of these was finally abandoned.

The Old Portage Railroad cost the Commonwealth \$1,828,461.38; the New Portage cost it \$2,143,335.49. Together by the end of 1853 they had produced for it a revenue of \$3,502,407.84, not quite seven-eighths of the total investment. They have never been regarded as enriching the State's coffers. But it is neither pleasant nor wise to count only material cost or gain to an official treasury. The Allegheny Portage Railroad connected East and West for twenty years of prosperity, bringing great wealth in trade and manufacture to the people and contributing its full share to the economic development of the Commonwealth.

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